IN THE CLAIMS:

Please amend the claims as follows:

1. (currently amended) A method for image processing, in which the number of bits is ~~limited~~ fixed in an encoded bit string, wherein a pixel is encoded into the bit string, the method ~~of a pixel~~ comprising:

- at the start of a line when a prediction value is not available for the pixel~~searching for a prediction value corresponding to said pixel~~;
- encoding a quantized pixel value to the bit string,
- if the prediction value is available for the pixel,~~after the prediction value has been found,~~

- determining ~~the~~ a difference between the pixel value and the prediction value, which difference is used for selecting a~~to select the~~ method for encoding among more than two encoding methods to encode said pixel into the bit string, each method for encoding having a certain step size for quantizing the value, and said certain step size being different in each method for encoding, wherein the method further comprising;

- encoding a code word ~~to the encoded bit string to indicate~~indicating the selected encoding method and the quantizer step size and the quantized value to the bit string~~; and~~,

- ~~encoding the pixel into the encoded bit string so that the encoded~~in which method the bit string has a fixed-length smaller than the length of the originally digitized pixel~~restricted number of bits that is fixed~~ for each~~substantially all of~~ encoded pixels in the image~~,~~

~~wherein said code word is determined on the basis of an original and the limited number of bits in the pixel in such a way that the code word length does not exceed N – (M – 1) where M corresponds to the limited number of bits and N corresponds to the original number of bits~~.

2. (original) The method according to claim 1, wherein the code word to indicate the selected encoding method is of variable length.

3. (currently amended) The method according to claim 1, wherein quantizing is used to encode the bit string, wherein first a limit value is determined, wherein said difference is compared with said limit value in such a way that when the difference is smaller, the quantized value is determined by quantizing the~~said~~ difference ~~is quantized in the encoding of the bit string~~, whereas when the difference is greater, the quantized value is determined by quantizing the original digitized value of the pixel ~~is quantized in the encoding of the bit string~~.

4. (CANCELLED)

5. (currently amended) The method according to claim ~~4~~ 39, wherein said code word is determined on the basis of the original and limited number of bits in the pixel in such a way that the code word length is two bits when the absolute value of the difference~~change~~ is less than 32 ~~bits~~, and that the code word length is three bits when the absolute value of the difference~~change~~ is more than 31 and less than 128 ~~bits~~, wherein when the absolute value of the difference~~change~~ exceeds 128 ~~bits~~, the code word length is selected to be one bit, wherein the encoding method is changed.

6. (currently amended) The method according to claim 1, wherein the encoding method to be used is selected between differential pulse code modulation and pulse code modulation coding in such a way that code word lengths greater than one bit indicate the use of differential pulse code modulation coding, wherein the code word length of one bit indicates the use of pulse code modulation coding.

7. (currently amended) The method according to claim 1, wherein the encoding method to be used is selected between ordinary differential pulse code modulation coding and smart differential pulse code modulation coding in such a way that code word lengths greater than one bit indicate the use of differential pulse code modulation coding, wherein the code word length of one bit indicates the use of smart differential pulse code modulation coding.

8. (original) The method according to claim 1, wherein said prediction value is the value of one encoded pixel value or the average of several encoded pixel values.

9. (CANCELLED).

10. (CANCELLED).

11. (original) The method according to claim 1, wherein the pixel is encoded for transfer between a camera module and an electronic device.

12. (currently amended) An image processing system comprising a device being~~which is~~ configured to process an image, wherein the device comprises means for encoding a pixel to an ~~with a limited number of bits in an~~ encoded bit string ~~of a pixel~~, in which the number of bits is fixed, wherein~~comprising~~:

- at start of a line when a prediction value is not available for the pixel, the device is configured to encode a quantized pixel value to the bit string,

~~-~~ if the prediction value is available, the device is configured~~an encoder for encoding the pixel to the limited number of bits,~~

~~a prediction module for searching for a prediction value corresponding to the pixel; and~~

~~a difference module configured so that after the prediction value has been found,~~ to determine a~~the~~ difference between the pixel value and the prediction value ~~is determined~~, which difference is used for selecting a method for encoding among more than two encoding methods to encode said pixel into the bit string, each method for encoding having a certain step size for quantizing the value, and said certain step size being different in each method for encoding, and

~~wherein the encoder is configured~~ to encode a code word indicating the selected~~said pixel by an~~ encoding method and the quantizer step size and the quantized value to the ~~indicated by the difference as well as to encode,~~

~~in the encoded~~ bit string, ~~a code word to indicate the encoding method indicated by the difference;~~

~~wherein~~ in which device~~the encoder is configured so that~~ the ~~encoded~~ bit string has fixed-length smaller than the length of the originally digitized pixel~~a restricted number of bits that is fixed~~ for each~~substantially all of the~~ encoded ~~pixels~~ pixel in the image~~; and~~

~~wherein the encoder is configured to determine said code word on the basis of an original and the limited number of bits in the pixel in such a way that the code word length does not exceed N – (M – 1) where M corresponds to the limited number of bits and N corresponds to the original number of bits.~~

13. (CANCELLED).

14. (currently amended) The system according to claim 12, wherein the system is also configured ~~for determining~~to determine a limit value, wherein the system is also arranged to compare said difference with said limit value in such a way that when the difference is smaller, the system is arranged to determine the quantized value by quantizing the~~quantize said~~ difference, whereas when the difference is greater, the system is arranged to determine the quantized value by quantizing~~quantize~~ the original digitized value of the pixel.

15. (CANCELLED)

16. (currently amended) The system according to claim ~~15~~ 40, wherein the system is also configured for forming the length of the code word on the basis of the original and limited number of bits in the pixel in such a way that the code word length is two bits when the ~~change~~ absolute value of the difference is less than 32 ~~bits~~, and that the code word length is three bits when the ~~change~~ absolute value of the difference is more than 31 and less than 128 ~~bits~~, wherein when the ~~change~~ absolute value of the difference exceeds 128 ~~bits~~, the code word length is one bit, to change the encoding method.

17. (currently amended) The system according to claim 12, wherein the system also comprises a differential pulse code modulation codec and a pulse code modulation codec, wherein code word lengths greater than one bit indicate the use of the differential pulse code modulation codec, wherein the code word length of one bit indicates the use of the pulse code modulation codec.

18. (currently amended) The system according to claim 12, wherein the system also comprises an ordinary differential pulse code modulation codec and a smart differential pulse code modulation codec, wherein code word lengths greater than one bit indicate the use of the differential pulse code modulation codec, wherein the code word length of one bit indicates the use of the smart differential pulse code modulation codec.

19. (original) The system according to claim 12, wherein said prediction value is the value of one encoded pixel value or the average of several encoded pixel values.

20. (original) The system according to claim 12, wherein the system also comprises means for decoding the bit string to correspond to the encoding.

21. (original) The system according to claim 12, wherein the system also comprises a camera module and an electronic device.

22. (original) The system according to claim 21, wherein the electronic device comprises means for performing mobile communication.

23. (currently amended) A device for image processing, which device is configured to process an image, wherein the device comprises means for encoding a pixel to ~~with a limited number of bits in~~ an encoded bit string, in which the number of bits is fixed ~~of a pixel comprising an encoder for encoding the pixel to the limited number of bits~~, wherein ~~the device is further configured~~:

- ~~for searching for a prediction value corresponding to the pixel~~at the start of a line when a prediction value is not available for the pixel;

the device is configured to encode a quantized pixel value to the bit string

if the prediction value is available, the device is configured

to determine~~for determining~~ the difference between the pixel value and the prediction value, ~~wherein the encoder is arranged to encode said pixel by the~~which difference is used for selecting a method for encoding among more than two encoding methods to encode said pixel into the bit string, each method for encoding having a certain step size for quantizing the value, and said certain step size being different in each method for encoding, ~~method indicated by the difference as well as to encode, in the encoded bit string, a code word to indicate the encoding method indicated by the difference;~~ and

to encode a code word indicating the selected encoding method and the quantizer step size and the quantized value to the bit string,

in which device the~~for encoding the pixel into the encoded bit string so that the encoded~~ bit string has fixed-length smaller than the length of the originally digitized pixel~~a restricted number of bits that is fixed~~ for ~~substantially all of the~~each encoded ~~pixels~~ pixel in the image~~;~~

~~wherein the device is configured to determine said code word on the basis of an original and the limited number of bits in the pixel in such a way that the code word length does not exceed N – (M – 1) where M corresponds to the limited number of bits and N corresponds to the original number of bits~~.

24. (CANCELLED).

25. (currently amended) The device according to claim 23, wherein the device is also configured for determining a limit value, wherein the device is also arranged to compare said difference with said limit value in such a way that when the difference is smaller, the device is arranged to determine a quantized value by quantizing the ~~quantize said~~ difference, whereas when the difference is greater, the device is arranged to determine the quantized value by quantizing ~~quantize~~ the original digitized value of the pixel.

26. (currently amended) The device according to claim 23, wherein the device comprises ~~is~~ also a decoder~~configured~~ for decoding the bit string in the way indicated by the code word.

27. (CANCELLED).

28. (previously presented) The device according to claim 27, wherein the device also comprises a transceiver for performing mobile communication.

29. (previously presented) The device according to claim 23, wherein the device also comprises a transceiver for performing mobile communication

30. (currently amended) A readable storage for storing software instructions for image processing with a limited number of bits in an encoded bit string of a pixel, as well as for encoding the pixel to the limited number of bits where said software instructions are executed by a processor to carry out the method of claim 1~~:~~

~~for searching for a prediction value corresponding to the pixel;~~

~~for determining the difference between the pixel and the prediction value and for encoding the pixel by the encoding method indicated in the difference, as well as for encoding, in the encoded bit string, the code word indicating the encoding method indicated by the difference;~~

~~for encoding the pixel into the encoded bit string so that the encoded bit string has a restricted number of bits that is fixed for substantially all of the encoded pixels in an image; and~~

~~for determining said code word on the basis of an original and limited number of bits in the pixel in such a way that the code word length does not exceed N – (M – 1) where M corresponds to the limited number of bits and N corresponds to the original number of bits~~.

31. (currently amended) A camera module comprising the device of claim 23~~for image processing, which camera module is fitted to process an image with a limited number of bits in an encoded bit string of a pixel comprising: -~~

- ~~an encoder for encoding the pixel to the limited number of bits,~~
- ~~a search module for searching for a prediction value corresponding to the pixel;~~
- ~~the camera module is configured to determine the difference between the pixel and the prediction value, wherein the encoder is arranged to encode said pixel by the encoding method indicated by the difference as well as to encode, in the encoded bit string, a code word to indicate the encoding method indicated by the difference; and~~
- ~~for encoding the pixel into the encoded bit string so that the encoded bit string has a restricted number of bits that is fixed for substantially all of the encoded pixels in the image;~~
- ~~wherein the camera module is configured to determine said code word on the basis of an original and limited number of bits in the pixel in such a way that the code word length does not exceed N – (M – 1) where M corresponds to the limited number of bits and N corresponds to the original number of bits~~.

32. (currently amended) A circuit for image processing, which circuit comprises an encoder and a decoder, which encoder is ~~arranged to process an image with a limited number of bits in an encoded bit string of a pixel, wherein the encoder is arranged to encode the pixel to the limited number of bits, whereinc~~onfigured to encode a pixel to an encoded bit string, in which the number of bits is fixed, wherein:

- at start of a line when a prediction value is not available for the pixel, the encoder is configured to encode a quantized pixel value to the bit string,
- if the prediction value is available, the encoder is configured to~~the encoder comprises a storage for storing at least one decoded pixel as a prediction value, wherein the encoder is arranged to retrieve the prediction value corresponding to the pixel from said storage;~~

~~the encoder configured for determining the~~ determine a difference between the pixel value and the prediction value, which difference is used for selecting a method for encoding among more than two encoding methods~~wherein the encoder is arranged~~ to encode said pixel into the bit string, each method for encoding having a certain step size for quantizing the value, and said certain step size being different in each method for encoding, and

to encode a code word indicating the selected~~by the~~ encoding method and quantizer step size and the quantizer value to the ~~indicated by the difference as well as to encode, in the encoded~~ bit string,

in which the circuit the bit string has fixed-length smaller than the length of the originally digitized pixel~~also a code word to indicate the encoding method indicated by the difference; and~~

~~configured for encoding the pixel into the encoded bit string so that the encoded bit string has a restricted number of bits that is fixed~~ for each ~~substantially all of the~~ encoded ~~pixels~~ pixel in the image~~;~~

~~wherein the encoder is configured to determine said code word on the basis of an original and limited number of bits in the pixel in such a way that the code word length does not exceed N – (M – 1) where M corresponds to the limited number of bits and N corresponds to the original number of bits~~.

33. (CANCELLED).

34. (previously presented) The circuit according to claim 32, wherein the encoding method to be used is differential pulse code modulation or pulse code modulation coding.

35. (previously presented) The circuit according to claim 32, wherein the encoding method to be used is ordinary differential pulse code modulation coding or smart differential pulse code modulation coding.

36. (original) The circuit according to claim 32, wherein the decoder is arranged to decode the bit string by a decoding method corresponding to the encoding method used.

37. (currently amended) A device for image processing, comprising:

a decoder ~~which is arranged to process an image with a limited number of bits in the bit string of a pixel, which decoder is also arranged to decode the pixel to its original number of bits~~for decoding an encoded bit string to obtain pixels of an image, in which bit string the number of bits is fixed,

wherein the bit string comprises a code word and a value, wherein the decoder is configured

~~is arranged~~ to recognize the code word to select a decoding method indicated by the code word among at least a first decoding method and a second decoding method corresponding with the encoding method used in forming the bit string;

to determine a dequantizer value on the bases of the selected decoding method~~from said bit string and to decode said pixel by the encoding method indicated in the code word~~,

wherein the decoder comprises a memory for storing at least one decoded pixel as a prediction value, wherein the ~~decoder~~ device is arranged to retrieve the prediction value corresponding to the pixel from said memory, ~~and~~

~~wherein said code word has been determined on the basis of the original and the limited number of bits in the pixel in such a way that the code word length does not exceed N – (M – 1) where M corresponds to the limited number of bits and N corresponds to the original number of bits~~wherein said device is configured to dequantize said value by said dequantizer value to obtain a dequantized value, and

if the first decoding method was selected, the device is configured to use said dequantized value to obtain the pixel value,

if the second decoding method was selected, the device is configured to use said dequantized value and said prediction value to obtain the pixel value, in which device the bit string has fixed-length smaller than the length of the obtained pixel value for each pixel in the image.

38. (currently amended) A device for image processing, which device is configured to process an image, wherein the device comprises means for encoding a pixel to an encoded bit string, in which the ~~with a limited~~ number of bits is fixed, wherein ~~in an encoded bit string of a pixel, comprising:~~

at the start of a line when a prediction value is not available for the pixel:

the device is configured to encode a quantized pixel value to the bit string,

if the prediction value is available, the device comprises

- ~~means for encoding the pixel to the limited number of bits,~~
- ~~means for searching for a prediction value corresponding to the pixel;~~
- means for determining the difference between the pixel value and the prediction value, which difference is used for selecting a method~~wherein the means~~ for encoding among more than two encoding methods~~is arranged~~ to encode said pixel into the bit string, each method for encoding having a certain step size for quantizing the value, and said certain step size being different in each method for encoding, and

  means for encoding a code word indicating the selected~~by the~~ encoding method and the quantizer step size and the quantized value to~~indicated by the difference as well as to encode, in~~ the ~~encoded~~ bit string~~, a code word to indicate the encoding method indicated by the difference~~;
- in which device the~~means for using a restricted number of bits in the encoded~~ bit string has fixed-length smaller than the length of the originally digitized pixel~~that is fixed~~ for ~~substantially all of the~~each encoded ~~pixels~~ pixel in the image~~; and~~

  ~~means for determining said code word on the basis of an original and limited number of bits in the pixel in such a way that the code word length does not exceed N – (M – 1) where M corresponds to the limited number of bits and N corresponds to the original number of bits~~.

39. (new) The method according to claim 1, wherein said code word is determined on the basis of an original and the limited number of bits in the pixel in such a way that the

code word length does not exceed N – (M – 1) where M corresponds to the limited number of bits and N corresponds to the original number of bits.

40. (new) The system according to claim 12, wherein the system is configured to determine said code word on the basis of an original and the limited number of bits in the pixel in such a way that the code word length does not exceed N – (M -1) where M corresponds to the limited number of bits and N corresponds to the original number of bits.